

# PATENT ABSTRACTS OF JAPAN

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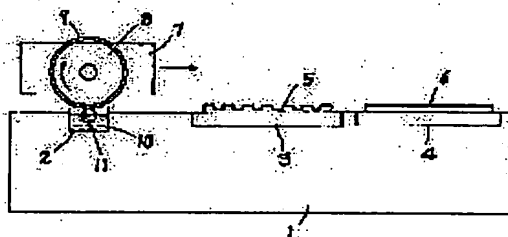
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## (54) IMAGING DEVICE

### (57)Abstract:

**PROBLEM TO BE SOLVED:** To prevent a threading phenomenon or a melon pattern from being generated by pressing a relief printing plate with a projecting non-image line part on the ink- applied face of a silicone blanket and adhering ink to the projecting parts and further, removing the ink adhered to the projecting parts from a base face to transfer the ink left on the base face to the face of a material to be printed.

**SOLUTION:** A coating unit 2, a printing plate platen 3 and a blanket cylinder 8 rotating on the surface of a printing platen 4 are installed on a movable frame 7 above a fixed frame 1. The blanket cylinder 8 is stopped on the unit 2 and a wire bar 11 is brought into contact with a silicone blanket 9 wound around the surface of the cylinder 8 to rotate the wire bar 11 together with the blanket 9. Thus an ink film is formed. Further, the blanket cylinder 8 is moved onto the printing plate platen 3 to make the cylinder 8 roll in contact with the surface of an intaglio printing plate 5. In addition, ink coming into contact with the tips of the projecting parts is removed from the surface of the blanket 9, and the blanket cylinder 8 is moved onto the printing platen 4 and then is made to roll over a glass substrate 6 to transfer the residual ink to the surface of the substrate 6. Consequently, it is possible to obtain a high- quality image free from a cobwebbing phenomenon and applied ink irregularities.



## LEGAL STATUS

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**CLAIMS**

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[Claim(s)]

[Claim 1] The image formation method which removes the resin of the part stuck by pressure while forming the spreading side of engineering plastics on the silicon blanket and pressing an intaglio or letterpress to the spreading side from on a silicon blanket, and comes to imprint the remaining resin on a non-printed object.

[Claim 2] The image formation method according to claim 1 characterized by forming the spreading side of engineering plastics on a silicon sheet, and imprinting on a silicon blanket.

[Claim 3] The image formation method according to claim 1 or 2 characterized by using a wire bar coating machine for formation of a spreading side.

[Claim 4] The image formation method according to claim 1 or 2 characterized by using a die coating machine for formation of a spreading side.

[Claim 5] The image formation method according to claim 1 or 2 characterized by using the blade which coated silicone rubber at a tip at formation of a spreading side.

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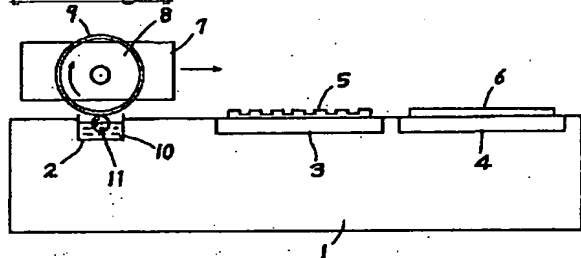
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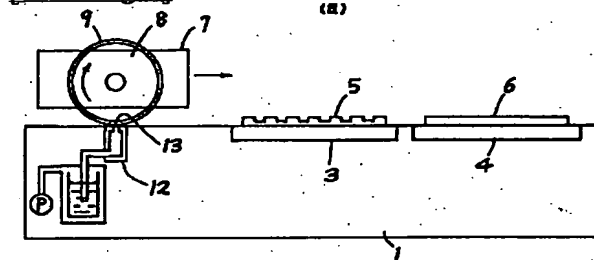
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## DRAWINGS

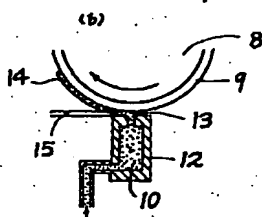
[Drawing 1]



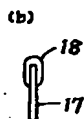
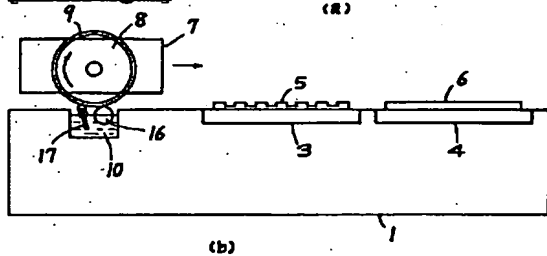
[Drawing 2]



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[Drawing 3]



[Drawing 4]

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DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Field of the Invention] In printing formation of the color filter for liquid crystal, and other engineering plastics, this invention relates to the image formation method for obtaining the high image of high definition surface smoothness.

[0002]

[Description of the Prior Art] The Taira version according to a formation image, an intaglio, or the printing version of letterpress is made from the conventional general print processes, ink is attached to the ink acceptance section (streak section) of this printing version with a roller etc., and the image is formed by printing on a substrate (imprint).

[0003]

[Problem(s) to be Solved by the Invention] With the above-mentioned conventional technique, in supplying ink on a version, it carries out through many rollers, ink is scoured between rollers, and it transfers, but in case [ this ] it transfers, ink will be torn among both rollers.

[0004] At this time, a \*\*\*\*\* phenomenon happens on an ink front face, and this yarn snaps, it adheres to each roller again, and the thickness nonuniformity (melon pattern) of ink arises in a roller front face by this. Also when transferring this melon pattern on a substrate from a printing plate, it was generated, and it has caused deterioration of the quality of printed matter, i.e., the fall of resolution or surface smoothness, generating of a feeling of ZARATSUKI, etc.

[0005] Then, this invention does not have a \*\*\*\*\* phenomenon and aims at offering the image formation method for the ability obtaining the printed matter of high quality which does not generate a melon pattern.

[0006]

[Means for Solving the Problem] In order to attain the above-mentioned purpose, this invention forms the spreading side of ink on 1 silicon blanket. 2) Press the letterpress in which the non-streak section (part to which the ink of an image is not attached) serves as a convex to the above-mentioned spreading side, and it is made to adhere to a part for heights, and heights part ink is removed from a base side, and what the ink which remained in 3 base side is imprinted for to printing hand-ed sides, such as a substrate, is made into main point.

[0007]

[Embodiment of the Invention] This invention is an image formation method which removes the resin of the part stuck by pressure while forming the spreading side of engineering plastics on the silicon blanket and pressing an intaglio or letterpress to the spreading side from on a silicon blanket, and comes to imprint the remaining resin on a non-printed object.

[0008] Moreover, the describing [ above ] image formation method forms the spreading side of engineering plastics on a silicon sheet, and you may make it imprint it on a silicon blanket.

[0009] Furthermore, it is characterized by the ability to choose [ to use 1 wire bar coating machine for formation of the above-mentioned spreading side, to use 2 die coating machine, to use the blade which coated silicone rubber at three tips, and ] whether it is \*\*\*\*\*.

[0010] (Example 1) If the example of wire bar coating is explained with reference to the experimental aircraft of drawing 1, the coating unit 2, the version surface plate 3, and the printing surface plate 4 are attached in the fixed frame 1, respectively, the glass intaglio 5 is put on the

version surface plate 3, and the glass substrate 6 is placed on the printing surface plate 4.

[0011] The movable frame 7 was formed on the fixed frame 1, and the blanket drum 8 which rotates and moves on the coating unit 2, the version surface plate 3, and the printing surface plate 4 is attached in this movable frame 7. And the silicon blanket 9 was twisted around the blanket drum 8, and the wire bar 11 is submerged in the ink 10 put into the coating unit 2 by the half.

[0012] If a motion is explained, stop the blanket drum 8 on the coating unit 2 to the 1st, and will contact [ both ] the silicon blanket 9 on the front face of a drum in the wire bar 11, it will be made to rotate, and an ink coat will be formed in a blanket front face. The 2nd is made to roll the blanket drum 8 in contact with a migration and intaglio 5 top on the version surface plate 3, and the ink which touches a heights point is removed from a silicon blanket front face. The ink in which the 3rd was made to roll a migration and glass substrate 6 top in contact with the printing surface plate 4 top, and the blanket drum 8 was remained on the silicon blanket in it is imprinted on a substrate 6.

[0013] (Example 2) Although the fundamental structure of the experimental aircraft shown in (a) is the same as the experimental aircraft of an example 1 and an imprint principle is the same as the experimental aircraft of an example 1 if the example of die coating is explained with reference to the experimental aircraft of drawing 2 ; it differs in the coating unit 2 of drawing 1 , and the die coating machine 12 is used. As shown in (b); on the head 13 of the die coating machine 12, the gap 15 according to the coating thickness 14 of blanket drum 8 front face is held, and rotation and an ink coat are formed for the blanket drum 8. The process after **\*\***(ing) is the same as an example 1.

[0014] (Example 3) If the example of blade use coating is explained with reference to the experimental aircraft of drawing 3 , the fundamental structure of the experimental aircraft shown in (a) is the same as an example 1, and the imprint principle of it is the same as that of an example 1. As shown in (b), the blade 17 which coated silicone rubber 18 as a coating unit is used. Ink is supplied on a silicon blanket by the ink feeder style 16, it is failed with a blade 17 to scratch excessive ink, and an ink coat is formed on a blanket. Future processes are the same as an example 1.

[0015] (Example 4) If an example is explained with reference to the experimental aircraft of drawing 4 , the structure of installing the version surface plate 3, an intaglio 5 and the printing surface plate 4, and a glass substrate 6 on the fixed frame 1 is the same as the experimental aircraft of an example 1. The drawdown surface plate 19 was instead put on the coating unit installation section, the silicon sheet 20 was stretched in the front face, and coating unit 2' is attached so that an ink coat can be formed in the front face of this sheet.

[0016] In this experimental aircraft, processing of ink in which it remained was considered and the die coating method is adopted. Explanation of a motion forms an ink coat by coating unit 2' on the silicon sheet 20 the 1st. The 2nd is rolled touching this silicon sheet 20 in the blanket drum 8, and the ink coat on a silicon sheet is imprinted on the surface silicon blanket 9. Future processes are the same as the 2nd and 3rd process of an example 1.

[0017] It **\*\***(ed), and especially materials, such as ink, an intaglio, and a silicon blanket, were able to be carried out, without giving a difference covering all the above-mentioned examples. About ink, the thing of the physical properties near usual intaglio-printing ink (10,000-1,000poise) was used. It dilutes with the solvent (the Toray Industries make, a thing-like PC-1) of parent silicon nature according to a situation, and a spreading property can be prepared. About the intaglio, although the glass intaglio or the resin version was sufficient, in the example, the glass intaglio etched and produced by **\*\*\*\*** after development was used. The resin version is suitable about the thick line, for example, a thing 2mm or more. Print tightness, APR, MIRAKURON, etc. can be used as a resin version.

[0018] although what was developed to intaglio offset was used for the silicon blanket, the method of **\*\*** which strengthened **\*\*** ink nature more is suitable. Although it changed with the physical properties of ink, the hardness of a silicon blanket, and **\*\*** ink nature about the print speed, at this example, it operated by part for 7-8M/.

[0019]

[Effect of the Invention] Since the ink spreading side is formed on a silicon blanket, 100% of imprint is performed in transition of ink, and since it dissociates like the conventional ink transition and does not imprint, the nonuniformity of the ink body according [ this phenomenon ] to a cause absolutely

none in the "\*\*\*\*\* phenomenon" generated according to separation does not occur. For this reason, the image formed by the FOTORISO method and the image approximated extremely were able to be obtained.

[0020] By the result of having produced the color filter for liquid crystal by this approach, the matrix of 10micro line breadth could form as the mask in black ink as an object for protection-from-light masks, and it has formed by 1.5micro of thickness, and surface smoothness\*\*0.1-0.15micro in RED of a pixel, GREEN, and BLUE. This does not have an exterior inferiority compared with the pigment-content powder method color filter by the FOTORISO method.

[0021] In order that a machine rate may move by part for 7-8M/, a production baton becomes a sheet in 16 - 20 seconds /, and becomes three to 4 times compared with the conventional pigment-content powder method.

[0022] Wet on Since printing of Wet is possible, 3 color coincidence printing (3 color printing machine) and 4 color coincidence printing (4 color printing machine) including a light-shielding film are attained, and expected [ of the great cost reduction effectiveness ] is carried out.

[0023] Since a printability is not needed to the ink (resin) to be used, much resin serves as a candidate for use, and can serve as a substitution process of many FOTORISO processes performed now.

[0024] Since an imprint is performed from a silicon blanket with \*\* ink nature to the substrate printed, by the conventional approach, printing of an ink detached building is attained also to the sheet and the thin resin which were not made well (ink should not draw a detached building printing substrate near promptly from a blanket).

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[Translation done.]